ABSTRACT OF THE DISCLOSURE

The present invention provides an electromagnetic component formed from adjacent conducting layers of a multi-layer PCB and two additional conducting layers in contact with the PCB. The inventive component includes one or more winding turns formed by connecting the multiple layers of the multi-layer PCB with conductive vias and by connecting the additional conducting layers to respective top and bottom surfaces of the PCB. In one embodiment, one of the conducting layers is soldered to a top conducting layer of the PCB and the other of the conductive layers is soldered to a bottom conducting layer of the PCB, effectively increasing the cross-sectional area of the top and bottom winding layers. In another embodiment, the additional conducting layers are separated from the adjacent conducting PCB layers by a layer of insulation, permitting the additional conducting layers to form separate winding turns. The inventive winding stack can be surface mounted to a PCB, and can be used as an inductor, or in other electromagnetic devices. The winding thus constructed is capable of accepting larger currents with lower resulting temperature increases than windings formed only from PCBs, and are less expensive to manufacture than PCB-only windings.